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REPORT OF THE TWENTY-FIFTH EDUCATIONAL  
CONFERENCE OF THE SECONDARY SCHOOLS  
IN RELATIONS WITH THE UNIVERSITY  
OF CHICAGO<sup>1</sup>

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The twenty-fifth annual conference of the University with co-operating secondary schools was held on Friday and Saturday, April 18 and 19, 1913. Reports from those who were most intimately related to its various departments give the impression that this was distinctly the most successful meeting of this sort within the history of the University. This result may be attributed in part to the general interest aroused by the topic announced for the general sessions and the departmental conferences, namely: Economy in Education; and in still greater part by the co-operation of a large number of people, including both officers of the University and high-school superintendents, principals, and departmental instructors.

The main features of the Conference as a whole consisted of (1) the departmental conferences of Friday afternoon, (2) the honor examinations of high-school students, held also on Friday afternoon, (3) the contests for high-school students in reading and in effective speaking held on Friday evening, (4) the general session of the Conference Saturday afternoon, and (5) the Conference luncheon for executive officers of the University and secondary schools on Saturday afternoon. To these features should be added the luncheon given by the University to the visiting high-school pupils and officers in the Hutchinson Commons Friday noon, the supper for high-school girls at Lexington, for the boys at Hutchinson, and for high-school officers at Emmons Blaine Hall. The number of high-school pupils present at the Friday luncheon

<sup>1</sup>Some of the papers given at the Conference will be printed in full in the fall numbers of the *School Review*.

exceeded the attendance of the last year by more than 125, and as these were present to attend the contests and examinations, it is obvious what this meant for the afternoon and evening occasions. The departmental conferences occupied almost every classroom and auditorium in the quadrangles, and nearly every conference reports a record-breaking attendance. The discussions both in the departmental conferences and in the more general public sessions were regarded as making distinct contributions to the solution of some questions just now uppermost in the minds of college and secondary-school people.

The University Examiner reports that—

Examinations were held Friday afternoon in German, American History, French, Mathematics, Physics, English, and Latin. To these examinations only students from the current Senior classes of co-operating high schools were admitted. To the winner of each examination is awarded a scholarship in the University amounting to full tuition for the next college year. The total number of students competing in the examinations was 251: 39 in German, 25 in American History, 11 in French, 61 in Mathematics, 14 in Physics, 64 in English, and 37 in Latin. Likewise two scholarships were awarded on the basis of contests conducted by the Public Speaking Department. One was a reading contest in which there were entered 29 students, the other a contest in effective speaking in which 44 students competed, a total of 73. In the effective speaking contest each school was represented by a team of two. Preliminary tryouts were held during the afternoon and the final contests were held in the evening. The scholarship in the reading contest was won by Sol Gluckstone of the East Division High School, Milwaukee, Wisconsin, and the scholarship in the effective speaking contest was won by Medard Welch of the Lane Technical High School, Chicago.

The following paragraphs present condensed reports of the departmental sessions of Friday afternoon, which reports were given at the Saturday morning session. The topic common to all these sessions was "Economy in Education."

*Biology—*

Chairman, OTIS W. CALDWELL, University of Chicago.

Secretary, H. B. SHINN, Carl Schurz High School, Chicago.

Attendance 55

The chairman stated that in a fairly typical botany class of college Freshmen, fully one-third of the students had had botany in the high school, yet no account of this fact was made in grouping the class or assigning the work. This fact was

further emphasized by Mr. Eikenberry in the results given of a questionnaire conducted through some eighteen colleges and universities of the Middle West. Of these institutions 72 per cent assign students prepared in biology to classes with students unprepared; 90 per cent of the schools fail to recognize any duplication of the work. In no case is any recognition given for one-half year courses. The conclusion is thus apparent that the college expects nothing of the high-school preparation; a later speaker restated this by saying that while there is articulation between the grammar and the high schools and between the Junior and Senior colleges, there is no such smoothness of junction between the college and the high school. Mr. Eikenberry further pointed out that some inequality exists inasmuch as in almost every other subject the college work in that subject begins where the high-school work leaves off. No solution of the problem was suggested.

In speaking of the topic of repetition and duplication, Dr. Galloway emphasized Mr. Eikenberry's conclusion, that owing to differences in equipment, time given, and methods of teaching, there is little or no duplication of work, hence that there is little or no waste on the student's or the instructor's part.

A very strong plea was made by Dr. Galloway for freedom in formulating the college course and for freedom on the high-school teacher's part in teaching the secondary course. In each case local or temporal conditions should largely determine what and how to teach, neither the high school nor the college being absolutely standardized.

In opening the general discussion, Mr. J. I. Thalman held that in most cases it is only tradition that restrains the college from admitting previously prepared students to second-year classes. In order to obviate this difficulty and that of repetition, he suggested two possibilities: first, that where the subject is repeated in college, it be done with new types or forms; second, that the high-school work be given in the second year.

Mr. T. L. Hotzman concluded that the high school is immediately and the college ultimately to blame for such repetition; that the college does not prepare its students to teach a high-school course, but rather one of intense morphology; that the high school should not give work on algae and similar plant forms, for instance, but that it should be more concerned with larger matters of plant growth and habit; and that a zoölogy course should emphasize vertebrates, mollusks, and insects.

Dr. Strong maintained that repetition is really beneficial; Dr. Newman, that there should be college courses in botany and zoölogy on the methods of teaching and that the higher institution should give essential principles, the lower, more nature study; Principal Armstrong, that the high-school course should be laid out more carefully with better correlation of subjects, that there should be various botanical and zoölogical courses offered for variously constituted classes, and that less thoroughness of treatment should be expected of secondary pupils; Mr. Clute, that there should be more nature-study. Pleas for better teaching of physiology were made by Professor Lindle and Mr. Carlson.

If one were to state two general conclusions from the lengthy and spirited discussion, they would probably be that the high-school courses in botany and zoölogy should be greatly altered, and that the high-school teachers need a different point of view.

*Earth Science—*

Chairman, ROLLIN D. SALISBURY, University of Chicago.

Secretary, WALTER S. TOWER, University of Chicago.

Attendance 75

The first question considered was: "Can repetition be avoided in the subject-matter of courses in geography and geology?" An affirmative answer was given both in the papers by Mr. James H. Smith, of Austin High School, and Professor Atwood, of the University of Chicago, and in the informal discussion which followed these papers. It appeared to be commonly agreed, however, that such avoidance of repetition would afford time for strengthening the courses concerned rather than permit time to be taken from those courses and devoted to other things.

The second question considered was: "Can secondary-school courses in physiography and commercial geography be made the equivalent of the elementary courses in these subjects in college, so that the student who has had either of them in an approved secondary school can pass at once to the next higher related course in college?"

Mr. Miller, of the University High School, pointed out that any answer to this question must take account of varying factors from school to school, as age of students when the course in question is taken, ability of the teacher, school equipment, and so on. Co-operation between schools and colleges in regard to arrangements of the high-school studies might solve all the problems, except perhaps the one arising from varying abilities of the teachers. Mr. Miller suggested a plan of taking high-school courses as the equivalent of elementary college work in cases of *individuals*, rather than by institutions or by classes.

Mr. Whitbeck presented statistics in regard to instruction in geography in Minnesota, Wisconsin, Indiana, and Ohio, which indicated that geography and physiography are commonly taught by persons without any special training in those lines.

Following this, statistics of grades attained by students in the elementary courses in the University of Wisconsin were presented.

In a class of 120 students, 20 had had one year of high-school work in the subject, average grade of the group 80.4 per cent; 66 had had one half-year in the high-school subject, average grade of that group 81.2 per cent; 34 had had no high-school course in geography, average grade of that group 80.8 per cent, or higher than those who had studied the subject for a full year in the high school.

The conclusion seemed to be that high-school work in geography and physiology does not help the student any when he pursues the college course.

The third question considered was: "Are there topics of relatively slight value in geography and geology which commonly receive an undue amount of time and attention in high-school and college courses? If so, is it not desirable to eliminate such topics or to curtail this discussion, so as to (1) shorten the course, thus saving time for the student, or (2) gain time for more important matters?"

In the absence of Mr. Pierson, Professor Barrows, of the University of Chicago, read the only paper on this subject. His paper and the discussion following indicated a concensus of opinion on the affirmative side, but with the idea of gaining time for more important matters, as the chief object to be sought.

At the close of the conference it was moved to direct the chairman to appoint a committee, which should be resolved into three subcommittees to investigate further the questions here discussed and to report their findings at the next annual conference.

*English—*

Chairman, HIRAM B. LOOMIS, Hyde Park High School, Chicago, Ill.

Secretary, L. W. SMITH, Thornton Township High School, Harvey, Ill.

Attendance 125

The paper by Mr. H. V. Church, Principal of J. Sterling Morton High School, Cicero, Illinois, on "Use of Scientific and Industrial Material as a Part of the Course in English in the High School" was read by a member of the faculty of that school. From the point of view of the Conference the most significant point of the paper was the fact that the fourth-year work in English is given only to pupils who do not expect to go to college. This fourth-year work consists in the history of English literature together with the use of such classics as will best illustrate the types of literature touched upon in this historical review. The idea in this method of treatment is that pupils who do not go to college should have this more or less technical treatment of the history of literature while those who do go to college had best reserve their study of the subject for college where it can be done more satisfactorily. This plan seems to result in a distinct economy in the high-school course in English.

The title of the second paper was "Repetition and Duplication in School and College Work," by Miss Alice Bidwell, Freeport, Illinois. Miss Bidwell had made a careful study of the courses of English in the various high schools to discover, if possible, if there is a duplication of work in the high school and college. It was found that many schools do work of a technical nature which should be reserved for college treatment. In some places the classic *Beowulf* is given in the high school; in others the subject of the drama is studied in a very technical and exhaustive manner. This represents distinct waste, since this type of work can better be done in college and since high-school pupils have not reached the stage of development where they can approach it with any degree of appreciation.

The third topic was "An Experiment in the Teaching of Freshman Literature," treated by Professor Boynton of the University of Chicago. The position

was taken in this paper that although many of the same topics in literature and composition are treated both in high school and college, this duplication in subject-matter does not always represent waste. In college the pupil approaches the subject from a new point of view by a different method and from the standpoint of greater maturity.

No resolutions were passed by the conference to gather up the results of the discussion into definite proposals, yet the above seemed to stand out clearly as the net result of the conference.

*French—*

Chairman, WM. A. NITZE, University of Chicago.

Secretary, ELIZABETH WALLACE, University of Chicago.

Attendance 42

Mr. Babcock read a paper on the topic: "Is the Use of Phonetics an Economy in Teaching Elementary French?" The speaker strongly advocated the use of phonetics in the classroom from the beginning, maintaining:

1. That the old way of teaching does not give satisfactory results—while the phonetic method gives accuracy, is an economy of time, develops mental power and vigor and incidentally prepares a pupil for reformed spelling.

The discussion was opened by Mlle. Favart of the Hyde Park High School and was participated in by six others. All advocated the use of a phonetic system but differed widely as to the system. The next subject, "In What Respects Is Elementary and Intermediate French a High-School Subject?" was treated in a paper by Mrs. Lockwood of the Wendell Phillips High School.

The discussion was opened by Miss Angus of the University High School. It was brought out that the greatest weakness in the teaching of French was the lack of uniformity in the results, brought out by the diversity of methods, that if this diversity could be modified so that results could be uniform and determinable the elementary and intermediate French might eventually become exclusively an elementary and secondary school subject.

It was moved that a committee be appointed by the chair, composed of members of the Romance Department of the University and of teachers from affiliated secondary schools, for the purpose of considering unified teaching.

*German—*

Chairman, MISS JOSEPHINE DONIAT, Carl Schurz High School, Chicago.

Secretary, MISS LYDIA SCHMIDT, University High School.

Attendance 75

The committee of high-school teachers appointed to arrange a program for the departmental conference in German prepared a syllabus for a three years' course in German, and sent this to all of the prominent high schools within a radius of 150-200 miles from Chicago. In general the committee recommended that less than heretofore be attempted in a three years' course in German, but that the work undertaken be done more thoroughly. The study of the

classics and the formal study of literature were therefore not included in the course outlined.

The conference was opened by Mr. Charles Goettsch of the University of Chicago, chairman of the Syllabus Committee, who, in his suggestions for bringing about economy of the pupil's time and effort, dwelt on the importance of the proper selection of a text and emphasized the necessity for clearness and simplicity in the presentation of the material. He urged that the recitation period be made not so much an occasion for finding out what the pupil has prepared at home but that it should rather be an occasion for developing new material with a view to reducing the home work as much as possible. He also spoke of the importance of putting the beginning classes into the hands of strong teachers.

Mr. Schacht, of the Wendell Phillips High School, in opening the discussion of the first year's work, spoke of the difficulties and waste involved in teaching classes composed of a mixture of pupils from the Freshman, Sophomore, and Junior classes. He also emphasized the desirability of putting beginning classes in the hands of experienced teachers, inasmuch as a good foundation is indispensable for satisfactory work in the later years.

Miss Hochbaum led in the discussion of the work of the second year.

Mrs. Worden discussing the third-year work commented briefly on the syllabus and advocated a reduction in the amount of work required of the teachers of German so that the total number of hours required should not exceed that of the teachers in other departments.

In the discussion which followed these papers the general opinion seemed to be that the committee had included more work in grammar in the first two years than could be done thoroughly.

A discussion arose regarding the best method of developing the pupils' ability to speak German. Professor Cutting of the University effectively answered the question by stating that the German used in connection with the grammar work and in the conversation and discussions connected with the texts read offered the only opportunity worth considering in drill work of this kind. It was further pointed out that the aim in the conversational work should be a reasonable one and that the use of simple sentences only should be insisted upon.

The teachers were much in sympathy with the proposal of the committee that less be undertaken but that thoroughness be insisted upon. The prevailing opinion was that considerable reading of medium difficulty should be the aim of the course rather than a more limited amount of difficult reading.

A resolution was passed that in the opinion of the teachers present the syllabus presented by the committee could be a great help in planning the high-school course in German. It was decided however to postpone the study of the relative pronoun to the second year and the study of the passive voice, subjunctive of indirect discourse and unreal condition, to the third year.

The committee presented a syllabus<sup>1</sup> of minimum requirements, which, while retaining desirable flexibility, would, if generally adopted, bring about greater

<sup>1</sup> This syllabus will be printed in full in a later issue of the *Review*.



unification of the work in our secondary schools and eliminate much of the present wastage between successive courses, teachers, and institutions.

*Greek and Latin—*

Chairman, ROBERT J. BONNER, University of Chicago.

Secretary, WILBERT L. CARR, University High School.

Attendance 75

Two reports were made; one by a committee appointed last year on the minimum requirements in form and syntax for the high-school course in Latin; the other by a committee from the Latin section of the Chicago high-school teachers' organization, on a broader and more attractive Latin course for high schools.

The first report, read by the chairman, Miss Frances Sabin, of Oak Park High School, after considerable discussion, was referred back to the committee, final action being deferred until next year.

The second report, presented in printed form by Mr. H. H. Matteson, of the Waller High School, recommended for the second, third, and fourth years' reading a wide variety of authors, to be used as substitutes for all or a part of the traditional requirements in Caesar, Cicero, and Virgil. A large list of supplemental texts, many of them costing only thirty-five or forty cents, was included in the report, and combinations suggested for each year's work. After some discussion, on motion by Professor Hale, the section voted its satisfaction with the report and expressed the hope that the suggestions made in the report might be adopted.

Mr. H. F. Scott, of the University High School, discussed and demonstrated the use of perception cards on which were printed vocabulary and inflectional forms. Some advantages gained are speed and accuracy on the part of the pupils.

*History—*

Chairman, MARCUS W. JERNEGAN, University of Chicago.

Secretary, ARTHUR F. BARNARD, University High School.

Attendance 50

The question "Is There Duplication of High-School Work in History in the First Year of the Junior College?" was discussed from the standpoint of the college by Mr. A. E. Harvey of the University of Chicago.

Mr. Harvey's main points were as follows: There are roughly three types of high-school courses in history; 1, those offering a one-year course in ancient history; 2, those offering a four-year sequence, i.e., ancient, mediaeval, modern, English, and American history in conformity with the recommendations of the committee of seven; 3, those offering a three-year sequence, i.e., ancient and mediaeval, modern European, American history in accordance with the more recent report of the committee of five.

The speaker considered the question of duplication from the standpoint of material, method, and emphasis. As regards material, the junior-college course covers the same ground as the course in mediaeval and modern history in the

high schools of class 2. In this instance there is duplication of subject-matter to a greater or less degree according to the tastes and preferences of the individual instructors. In the high schools of class 3 the duplication of subject-matter is negligible, as the emphasis is placed on English history in the high school and on continental conditions in the college.

In method, according to the speaker, there is a wide difference between the work of the high school and that of the college. In the former the textbook-recitation method is used almost universally and there is little note-taking. In the latter the lecture-recitation method is employed and the student is trained to take notes. The whole work is on a higher plane.

There is also a difference in emphasis. In the high school the emphasis is on facts rather than events, the "what" rather than the "why." In the college the judgment is cultivated by the weighing of evidence, and the scientific habit of mind by the study of cause and effect.

Thus it seems that the duplication is confined to subject-matter. The speaker voiced the opinion that duplication was not undesirable in view of the well-known complexity of European history. In the statistics collected by Mr. Harvey only 15 out of 88 students in the junior college believed that they should have taken more advanced work; 59 out of 88 were of opinion that the courses differed essentially in subject-matter, and 82 out of 88 that they differed essentially in method.

The question was considered from the standpoint of the high school by Mr. Parker of the Quincy High School. The aims of the teacher are, first to cultivate the memory, imagination, but more particularly the judgment and reasoning power; second to cultivate a taste for historical reading that will last through life; third to give the student a broad grasp of the developments of modern history; fourth to enable the student to understand better the world in which he lives.

As to methods, the up-to-date teacher shows his students how to study history by building up systems of relationships and thus actually organizing the historical material. In giving out a lesson he is not satisfied with a page assignment, but shows the pupil the inner anatomy of the lesson, that each paragraph is a unit and must be mastered as an organic whole, and that there is likewise a thread of unity connecting the paragraphs of the lesson; further, that the great unifying idea of the lesson may be considered as the effect of a precedent cause, and the cause likewise of some as yet unconsidered effect. In the recitation the student is given freedom of thought and expression but always under the guidance of the teacher.

As to material, the textbook is used in preference to the syllabus. A certain amount of collateral reading is demanded.

The papers were discussed by Miss King of Oak Park, Miss Durbin of Englewood, and Miss Osgood of the Faulkner School. A brief general discussion followed. There seemed to be general agreement to the effect that except for

unusual students and the best high schools there is little duplication under present conditions.

The conference adopted the following resolutions: "That it is desirable for the average pupil who has taken European history in the high school to repeat it in college; that some administrative device be adopted by which the exceptional student may be excused from such course or courses."

*Home Economics—*

Chairman, DEAN MARION TALBOT, University of Chicago.

Secretary, MISS MILDRED WEIGLEY, DeKalb High School.

Attendance 60

The conference was opened with a paper by Miss Jenny H. Snow of Chicago Normal College on "The Part of the High School."

Miss Snow's paper suggested that the mass of material, unclassified and unorganized, relating to home economics which has come in as a result of scientific research, forces upon the high school, not so much the problem of *what* we are to teach, as *how* we are to present material. In order to determine this, the motive in high-school home-economics work must be considered.

Inasmuch as this subject is being taught largely because of its direct influence on the home, Miss Snow believes that the work should be given from the economic rather than from the scientific point of view, not with any idea of eliminating the scientific principles which underlie so much of the home-economics work, but rather with that of emphasizing the economic. Science courses, it is thought, should not be required as a prerequisite for home economics but through home economics the girls should be led into organized science work thus giving science a meaning to the girls.

The discussion that followed concerned itself largely with the following problems: First, the relation of the science to the courses in home economics. Shall we ask for more science work as preliminary to home economics or may we legitimately carry it on without this science work? While opinions on this were not unanimous, the majority felt that the home-economics work in the first years, leading the girl into the science later, was preferable to requiring prerequisites of science.

Second, the planning of courses that shall be suitable for high-school students rather than the attempted use of what is really college work.

Last, the desirability of a general science course to be given in the first year of the high school.

At the close of the discussion it was resolved:

1. "That there is need of more definite formulation of high-school courses in the belief that if the need of the high-school girl is really met there will be no duplication in college."

2. "That a general science course in the first year of high school is desirable for students of home economics."

3. "That in view of the changing conditions the economic, social, and civic aspects of household life be emphasized, especially the economics of consumption."

*Manual Arts—*

Chairman, FRANK M. LEAVITT, University of Chicago.

Secretary, WILSON H. HENDERSON, Hammond, Indiana.

Attendance 50

The topic discussed in the manual-arts section of the Conference was the articulation of high-school manual-arts courses with general college work.

In all of the papers, and in the ensuing discussion it was noted that such courses undoubtedly contribute greatly to the success of the rest of the high-school work and to the subsequent life-work of a large number of pupils, whether they attend college or not. It was maintained that these more general values outweigh the specific value of the manual arts as college-preparatory subjects and amply justify the high school in administering manual-training courses in any event.

In the discussion of the narrower question, the value of manual training as a college-preparatory subject, the objections of the technical universities to giving credit for high-school manual-training and drawing were taken up in considerable detail and the position of such objectors shown to be untenable, and it was made evident that the attitude of several technical colleges is distinctly less liberal than many general and classical colleges.

The following quotation from one of the papers well expresses the evident opinion of those present regarding this matter of articulation: "If in order rightly to connect with college it is necessary that there be continuity of work, the same courses of instruction carried on in unbroken line, then there is no hope at present for pupils of manual-arts courses except in a very few strictly technical colleges. Two roads may join, however, without going in the same direction. All that is necessary is that a traveler may pass from one to the other without inconvenience. We maintain that if a pupil on leaving a manual-arts course is prepared to carry successfully the work of a given college, he is ready for that college. We hold that if a pupil, who has finished a four years' high-school course, has the ability to do Freshman work in college, he ought to be given credit for all of that high-school course, whether classical or manual arts."

This whole discussion emphasized the desirability of authentic information regarding the degree of success attained in junior-college work by students entering the University with liberal entrance credit for manual training and drawing.

Perhaps the most significant point made, so far as the University of Chicago is concerned, was that relating to the preparation of teachers of manual and industrial training. It was shown that one reason why manual training does not articulate better with college work is because of the difficulty of securing manual-training teachers who have any acquaintance with the higher institutions. It was shown that it is practically impossible to find any considerable number of men who will give four years to college preparation, unless in these four years

they can secure a liberal amount of necessary technique; that is to say, an amount enabling them to teach successfully in high schools.

Another quotation from one of the papers is as follows: "Now if colleges and universities are really interested in helping solve high-school difficulties, here is one to try their mettle. There is a most urgent demand all over our country for trained vocational teachers. I know of no profession in which the demand so far exceeds the supply. Let the colleges and universities establish courses for teachers, to which actual tradesmen may be admitted. In Indiana our recent law provides that up to 1915, schools may employ as teachers, without examination, skilled workmen regardless of scholastic attainments. We would really prefer that these men and women have training added, but where is the course for teachers to which the fact that they are skilled artisans admits them? These men and women direct from the trades have narrowly specialized training and they are called upon to teach more broadly than they have practiced. Such a teachers' course in a university as suggested would add the needed breadth. I understand the University of Wisconsin is beginning a work of this kind." Subsequently the plans of the University of Wisconsin for carrying on this work were discussed.

At the close of the meeting the following resolutions were adopted as covering the major considerations of the conference:

"WHEREAS, The major purpose of instruction in the manual arts in the high school is to contribute directly to the vocational efficiency of the pupils, and

"WHEREAS, It is still a debatable question whether manual training in the high school will contribute materially to the subsequent success of an individual, *as a student* in the universities other than technical, and

"WHEREAS, No one seems to doubt the value of such training for *success in life* after or without college training and experience, and

"WHEREAS, The University of Chicago has already recognized this general value of manual training in the high school, and gives liberal entrance credit for such work, and the University, therefore, is in a peculiarly advantageous position to collect data on the above mentioned debatable question, therefore

"*Be it resolved:* That we earnestly request the University of Chicago to investigate the matter for the purpose of throwing such light on the question as a study of the records may reveal."

#### *Mathematics—*

Chairman, H. E. SLAUGHT, University of Chicago.

Secretary, BEULA SHOESMITH, Hyde Park High School, Chicago.

Attendance 85

Harry O. Gillet of the School of Education of the University of Chicago, presented the subject, "Economies in the Course in Mathematics," from the standpoint of the elementary school, showing how one year had been saved without loss of efficiency, with the result that pupils from the seventh grade are this year prepared to enter high school. This result has been accomplished after two years' experiment in the University Elementary School by avoiding unnecessary repetition, stimulating active thinking, and organizing the course of study on a psychological basis.

Frank O. Hester of Lane Technical High School, Chicago, considered the topic from the standpoint of the high school, suggesting that waste of time might be avoided and efficiency increased by eliminating certain topics in secondary mathematics, by shortening the time spent on drill, and by treating mathematics as a unified subject rather than several separate subjects, thus utilizing cross applications in algebra, geometry, and trigonometry.

H. E. Cobb of Lewis Institute, Chicago, discussed the subject in connection with the work of the junior college, showing how from one to two years can be saved by studying recent developments and modifying the course in accordance with the real needs of the student. Time should be saved for the student who enters the vocations before finishing the college course as well as for those who complete the course. This might be accomplished by replacing abstract work by practical problems and by making the conditions in school like those without. The question of waste here is one which concerns the individual teacher as well as the administrative officers.

Among those who contributed to the general discussion which followed were Mr. McGuane, Miss Henry, Miss Mable Sykes, Mr. Morgan, Mr. Donecker, Mr. Connor, and Miss Jaynes of the Chicago schools, Mr. Walter Slocum, principal of the Carl Schurz High School, Mr. Erwin of the Joliet Township High School, and Professor Wilczynski of the University of Chicago. The following resolutions were passed:

*"Resolved,* That the Mathematics Conference use its influence to increase the time for all high-school mathematics from four periods a week to five.

*"Resolved,* That this conference go on record as recommending greater departmental activity in the way of conferences among mathematics teachers."

#### *Physics and Chemistry—*

Chairman, C. R. MANN, University of Chicago.

Secretary, E. S. BISHOP, University High School.

#### Attendance 40

Mr. W. H. Courson, of the Anderson, Indiana, High School, in a paper entitled, "Wastage in High-School Physics and Chemistry," pointed out that only 2 per cent of high-school graduates go to college, and that the greatest wastage in the present practice of physics teaching is in teaching courses which prepare for college, rather than adapting the course to the local needs of the community. He partially indicated how this end might be accomplished in rural communities by teaching the application of physics to farm machinery and the soil. He also drew attention to the wastage in time and effort resulting from girls taking the usual courses in physics and chemistry, rather than courses the applications of which should be taken from the physics and chemistry of the household.

Mr. B. W. Kelly, of Richmond, Indiana, showed how the teacher could prevent wastage of time by a better organization of the course in both the lecture-table demonstrations and the laboratory work. He presented a carefully thought-out method of handling the laboratory notes. He drew attention to the necessity

of teaching algebra and arithmetic with a slight physics flavor, by using other letters than  $x$ ,  $y$ , and  $z$  to denote unknown quantities, and by teaching mensuration and decimal fractions.

Mr. Hermann Schlesinger of the Department of Chemistry, University of Chicago, in discussing the "Co-ordination of High-School and College Chemistry" showed how the University is attempting to correlate the two but that in so doing a certain wastage of time resulted for students entering the University with high-school chemistry. These students complete the general course in chemistry in the University in two quarters, whereas those entering without chemistry require three quarters. Thus in the former case about 300 hours is spent on general chemistry, 120 in the University and 180 in the High School, whereas if all the general chemistry is taken in the University 180 hours is required, a saving of 120 hours. He also showed that, if we consider one hour in the University at their advanced stage of maturity worth two hours in the high school, the wastage in time for those entering with chemistry would be only 30 hours. Mr. Schlesinger then very forcibly pointed out the cause of the inability of the University further to correlate its course in general chemistry with high-school chemistry as being due to the student's lack of independence, responsibility, and intellectual maturity. He attributed this lack of independence to the American attitude toward our children, the tendency to make things too easy for them. We do not encourage them to fight out their own difficulties. We direct and help them too much so that they never acquire the habits of independent thought.

The Program Committee for the Conference of 1914 is constituted as follows: *Chairman*, Spencer R. Smith, Principal, Wendell Phillips High School, Chicago; *High-School Representatives*: Superintendent Sandwick, Deerfield Township; Superintendent Wirt, Gary, Indiana; Miss Frances Sabin, High School, Oak Park; *University Representatives*: Professors Judd, Mann, and Goettsch.